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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,271	11/25/2003	Te-Chou Yang	MR2863-136	4769

4586 7590 06/13/2006

ROSENBERG, KLEIN & LEE  
3458 ELLICOTT CENTER DRIVE-SUITE 101  
ELLICOTT CITY, MD 21043

EXAMINER
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WILLIAMS, SHERMANDA L

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/720,271	<b>Applicant(s)</b> YANG, TE-CHOU	
	<b>Examiner</b> Shermanda L. Williams	<b>Art Unit</b> 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

**INTEGRATED MODULE OF BIPOLAR PLATE FOR FUEL CELL STACK**

Examiner: Williams

S.N. 10/720,271

Art Unit: 1745

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claim 1 is rejected under 35 U.S.C. 102(a) as being unpatentable over Wu et al. (US 6,599,650). Wu et al. discloses a fuel cell sealant design that entails lining the coolant flow field plate channels with a sealant material. Fuel cells are arranged in series to form a fuel cell stack (col. 2 lines 60, 61). Wu et al. teaches a fuel cell having a cathode flow field, an anode flow field, and a membrane electrode assembly (MEA) with a proton exchange membrane **202** between a first and second or cathode and an anode catalyst layer (col. 1 lines 12-14, 26-41). The fuel cell has gas diffusion layers **210, 220** disposed between the cathode and anode flow field (col. 1 lines 16-20) and the cathode and anode catalyst layers (col. 1 lines 29-33).

2. The cathode, coolant, and anode flow plates have channels where the respective fluid may flow from the inlet to the outlet manifolds. The cathode flow field plate **232** has channels where the cathode gas may flow (col. 1 lines 37,38). The anode flow field plate **242** has channels for the flow of the anode gas (col. 1 lines 42,43). The coolant flow field plate **234** is positioned between the cathode and anode flow field plates (col. 1 lines 18, 9) and has channels for the coolant to flow across the plate (col. 2 lines 43-46).

3. Two adjacent cells are arranged so that the one side of a flow field plate functions as the anode flow field plate for one fuel cell while the opposite side of the flow field plate functions as the cathode flow field plate in the adjoining fuel cell (col. 2 lines 60-65). The coolant flow field plate allows heat removal from the fuel cell due to its ability to transport heat away from the internal components of the fuel cell (col. 2 lines 43-59, col. 3 lines 1-5). The prior art teaches the bipolar configuration for the anode, cathode, and coolant plate (col. 2 lines 62-66)

4. Claim 2 is rejected under 35 U.S.C. 102(a) as being unpatentable over Wu et al. Wu et al. discloses that each end assembly **101** and **103** contains a current collector **110** or conductor and an end plate **102** on either end of the fuel cell stack (anode and cathode end). See col. 8 lines 1-9.

5. Claim 3 is rejected under 35 U.S.C. 102(a) as being unpatentable over Wu et al. Wu et al. discloses a cathode flow field plate with channels **233** having a cathode gas inlet and outlet **237**, **239**. Figure 3 displays the parallel flow channels in the central region of the cathode flow field plate and the cathode gas inlet and outlet manifolds. See col. 8 lines 40-46.

6. Claim 4 is rejected under 35 U.S.C. 102(a) as being unpatentable over Wu et al. Wu et al. discloses an anode flow field plate with channels **243** having an anode gas inlet and outlet **247, 249**. Figures 4 displays the parallel flow channels in the central region of the anode flow field plate and the anode gas inlet and outlet manifolds. See col. 8 lines 46-48.

7. Claim 5 is rejected under 35 U.S.C. 102(a) as being unpatentable over Wu et al. Wu et al. discloses a coolant flow field plate with channels **245** having an anode gas inlet and outlet **257, 259**. Figures 5 displays the parallel flow channels in the central region of the anode flow field plate and the anode gas inlet and outlet manifolds. See col. 8 lines 49-55.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shermanda L. Williams whose telephone number is (272) 571-8915. The examiner can normally be reached on Mon.-Thurs. 7 AM - 4:30 PM and alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (272) 571-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER